

Use a matrix representation to determine if the linear transformation $\langle \text{ltdefn} | T | P_3 | M_{22} \rangle$ surjective (if, for every $y \in Y$, there is an $x \in X$ such that $f(x)=y$).

Use una matriz para representar si la transformacion lineal

$T: P_3 \mapsto M_{22}$ es valida para $f(x) = y$.

$$T(a + bx + cx^2 + dx^3) =$$

$$\begin{pmatrix} -a + 4b + c + 2d & 4a - b + 6c - d \\ a + 5b - 2c + 2d & a + 2c + 5d \end{pmatrix}$$